PATENT ABSTRACTS OF JAPAN

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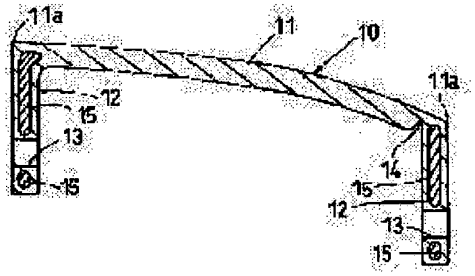
(54) AIR BAG DOOR STRUCTURE OF VEHICLE

(57)Abstract:
PROBLEM TO BE SOLVED: To provide a car air bag door structure that is able to secure a good product in terms of appearance without deformation even if it comes in contact with a resin material constituting a cab side member in time of forming, and further concentrating the extent of inflating pressure in an air bag on a rapture part without dispersing it upon checking any expansion of a installation part in time of air bag inflation, thereby opening a door member surely and quickly and capable of unfolding the air bag in a cab so accurately.



SOLUTION: In a device unified with a door member made up of a installation part 12 to an air bag storage vessel, in a door body part 11 simultaneously with the formation of a cab side member, the door body part and the installation part of the said door member are integrally molded by a common body forming material consisting of TPO resin of more than 1,000kg/cm2 in bending elastic modulus, while a reinforced layer 15 by a reinforcing forming material consisting of high rigidity and high heat resistant resin, making PP resin of more than 5,000kg/cm2 in the bending elastic modulus as a chief ingredient, is integrally formed in the said installation part.

LEGAL STATUS

[Date of request for examination]

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CLAIMS

[Claim(s)]
[Claim 1] that with which vehicle room flank material was fabricated simultaneously united for the door member by which the attachment section to an air bag hold container was formed in the door book soma — setting — the aforementioned door — the air bag door structure of the vehicles characterized by to fabricate at one the both according to reinforcement molding material in the aforementioned attachment section reinforcement layer by which the door book soma and the attachment section of a member are fabricated by the common main part molding material at one
[Claim 2] The aforementioned main part molding material bends in a claim 1, and it is elastic-modulus 1000 kg/cm2. The aforementioned reinforcement molding material bends by the above TPO resin, and it is elastic-modulus 5000 kg/cm2. Air bag door structure of the high rigidity which makes the above PP resin a principal component, and the vehicles which consist of a high heat resistant resin.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[The technical field to which invention belongs] This invention relates to the air bag door structure of vehicles.
[0002]
[Description of the Prior Art] An example of the air bag equipment formed in drawing 8 at the passenger side of vehicles is shown. The folded-up air back A is held in the air bag hold container C with the air bag starting device I, and this air bag equipment 50 is attached in the vehicle room flank material P rear face. When vehicles get a once big shock, the opening O of the aforementioned air bag hold container C upper part is pushed up from a vehicle room flank material P background, and the door member D opens it, and it makes the vehicle interior of a room develop an air bag A with the pressure of the air bag A which expanded by the operation of the aforementioned air bag starting device I, although time of peace is covered by the door member D formed in the aforementioned vehicle room flank material P at one. As it is another fabricated beforehand and is shown in drawing 9 , this door member D is arranged in the mold 60 at the time of fabrication of the vehicle room flank material P, and is united with the resin material P1 from which the door book soma D1 constitutes vehicle room flank material simultaneously with fabrication of the vehicle room flank material concerned. And it is attached in the up periphery of the air bag hold container C through the attachment section F prepared in the door rear face. A sign 51 is the fracture section of the thin meat prepared along with the periphery of the aforementioned door book soma D1.
[0003] By the way, if it is in this seed air bag door structure, the door member D breaks with the shock at the time of expansion of an air bag, or an elasticity elastomer softer than surrounding vehicle room flank material constitutes the door member D in many cases so that the fragment may not disperse in the vehicle interior of a room. However, when such elasticity material constitutes the door member D, this door member D is disagreeable ****** which the attachment section F with the air bag hold container C elongates according to the expansion-pressure force of an air bag A as shown in drawing 10 . Extension of the attachment section F in this door member D absorbs and distributes the expansion-pressure force of the air bag which should be added to the fracture section 51. distribution of the expansion-pressure force of this air bag — a door — in order to obtain the door member which operates with a sufficient precision certainly more since it leads to elevation of the internal pressure of dispersion of the released time of a member, and the air bag within a hold container, it is necessary to suppress the elongation of the attachment section at the time of the aforementioned air bag expansion to the minimum
[0004] On the other hand, it faces fabricating vehicle room flank material to the door member D and one. If the door member D concerned is constituted by elasticity material, as shown in drawing 11 The periphery D2 of the door book soma D1 deformed in response to the injection pressure and the heat of the composition resin material P1 of vehicle room flank material, the conjunction line with the door member in the really fabricated vehicle room flank material was confused, and there was a problem of spoiling the appearance.

[0005]
[Problem(s) to be Solved by the Invention] This invention can be proposed in view of such a trouble, even if it contacts the resin material which constitutes vehicle room flank material at the time of fabrication, it cannot deform, and it can obtain a product with good appearance. And it concentrates to the door fracture section, without suppressing extension of the attachment section at the time of air bag expansion, and distributing the expansion-pressure force of an air bag. It is going to offer the air bag door structure of vehicles where it can have, a door member can open wide certainly and promptly, and the vehicle interior of a room can be made to develop an air bag with a sufficient precision.
[0006]
[Means for Solving the Problem] Namely, this invention is set to that with which the door member by which the attachment section to an air bag hold container was formed in the door book soma was united simultaneously with fabrication of vehicle room flank material. the aforementioned door — the air bag door structure of the vehicles characterized by fabricating at one the both according to reinforcement molding material in the aforementioned attachment section reinforcement layer by which the door book soma and the attachment section of a member are fabricated by the common main part molding material at one is started
[0007]
[Function] According to the air bag door structure of the vehicles of this invention, since the reinforcement layer by the charge of reinforcing materials is formed in the attachment section to an air bag hold container at one, sufficient intensity for the attachment section is given. Therefore, without suppressing extension of the attachment section at the time of air bag expansion, and distributing the expansion-pressure force of the air bag of an air bag, it can concentrate and have to the door fracture section, and an air bag door can be developed certainly and promptly.
[0008] The main part molding material which constitutes a door book soma and the attachment section as especially shown in a claim 2 bends, and it is elastic-modulus 1000 kg/cm2. The above TPO resin and a reinforcement molding material bend, and it is elastic-modulus 5000 kg/cm2. It is desirable to constitute from high rigidity which makes the above polypropylene a principal component, and a high heat resistant resin.
[0009] this invention — setting — the bending elastic modulus of a main part molding material — 1000 kg/cm2 having considered as the above TPO resin gives the suitable flexibility for a door member — a door — a member — it is for losing the crack of the door at the time of opening, scattering of a fragment, etc. the bending elastic modulus of this main part molding material — 1000 kg/cm2 the case where it is the following — a door — the rigidity and thermal resistance of a member become inadequate Moreover, in case the aforementioned door book soma opens by fabricating a door book soma and the attachment section to one, it does not break with the attachment section.
[0010] Furthermore, bending elastics modulus are the reinforcement molding material which constitutes a reinforcement layer 5000 kg/cm2 When a door member is pushed up by expansion of an air bag, it considers as a high rigid and high heat-resistant resin material which makes the above polypropylene a principal component for preventing extending the attachment section. Moreover, it is for not producing deformation in a door member, even if vehicle room flank material formation material and a door member contact at the time of fabrication of vehicle room flank material.
[0011] As a resin material which makes this polypropylene a principal component, you may use the resin material which constitutes vehicle room flank material. the bending elastic modulus of the aforementioned reinforcement molding material — 5000 kg/cm2 it is the following — rigidity expected to the attachment section 12 — it cannot give — elongation — large — becoming — distribution of the swelling-pressure force of an air bag — a door — it may lead to dispersion of the released time of a member, and an internal pressure rise of the air bag within a hold container Moreover, deformation of the door book soma at the time of vehicle room flank material fabrication and distortion of a periphery cannot be prevented completely. As for the aforementioned reinforcement layer 15, it is desirable to be prepared to the nearest to a

boundary with the door book soma 11 including the mounting hole 13 to the air bag hold container C in the aforementioned attachment section 12 at least. It can prevent the elongation of the attachment section at the time of air bag expansion is not only preventing, but the resin material's contacting a door book soma, and the amount of door book outside-of-the-body periphery deforming by that cause, at the time of vehicle room flank material fabrication, since the periphery of a door book soma is reinforced.

[0012] In addition, to the aforementioned main part molding material and a reinforcement molding material, other additives of the grade which does not spoil the physical properties can be added suitably. As the additive, there are an antioxidant, an ultraviolet ray absorbent, a fluid improvement agent, reinforcing materials-ization (a filler and fibers), etc.

[0013]

[Embodiments of the Invention] According to an attached drawing, this invention is explained in detail below. the door at which drawing 1 has this invention structure — the cross section in which the cross section of a member, the cross section of the vehicle room flank material of the vehicles with which, as for drawing 2 , the door member of this invention structure was prepared, and drawing 3 show immediately after the air bag equipment operates, and drawing 4 are the cross sections showing the state where an air bag expands

[0014] moreover, the cross section in which drawing 5 and drawing 6 being the cross sections showing the example of manufacture of the vehicle room flank material of vehicles which has the air bag door structure of this invention, and showing the state where of drawing 5 injected the composition resin material of vehicle room flank material in the mold, the cross section showing the state where of fabrication completed drawing 6 , and the door at which drawing 7 has this invention structure — it is the cross section showing other examples of a member

[0015] it is shown in drawing 1 and drawing 2 — as — the door of this invention — the attachment section 12 is formed in the rear face of the door book soma 11, and a member 10 is united with fabrication of vehicle room flank material, simultaneously the predetermined position of the vehicle room flank material 20 concerned In addition, in the air bag equipment of this drawing, the same sign as drawing 8 shows the same member. The door book soma 11 covers the opening O of the air bag hold container C of the air bag equipment 50 formed in the rear-face predetermined position of the vehicle room flank material 20, is prepared, and constitutes a part of vehicle room flank material.

[0016] moreover, the attachment section 12 — a door — it is for connecting a member 10 with the air bag hold container C, and it is installed in the shape of a flange toward the background from periphery 11a of the aforementioned door book soma 11, and two or more mounting holes 13 to the air bag hold container C are formed In this example, two or more hook-like attachment members H are formed in the up periphery of the air bag hold container C, and it is attached by hooking the attachment member H on the aforementioned mounting hole 13 so that I may be understood from drawing 2 . In addition, in this example, the fracture section 14 of thin meat is formed in the boundary rear-face side of the door book soma 11 and the attachment section 12. although this fracture section 14 omits illustration — the kind of vehicle room flank material, and a door — it being formed of the configuration of a member the character of abbreviation KO, the character of RO, and in the shape of [of E] a character, and centralizing effectively the pressure at the time of air bag expansion — ** — previously — fracturing — a door — expansion of a member is urged

[0017] The aforementioned door book soma 11 and the attachment section 12 are fabricated by one by the common main part molding material. For this main part molding material, bending elastics modulus are 1000 kg/cm2. The above TPO resin is used.

[0018] The reinforcement layer 15 which consists of a reinforcement molding material is formed in the interior of the attachment section 12. This reinforcement layer 15 is bending elastic-modulus 5000 kg/cm2. The polypropylene regin which has the above is used. in addition, the door of this example — a member 10 can be suitably fabricated by well-known double injection fabrication

[0019] Since according to the air bag door of this structure it is inelastic in the attachment section 12 as shown in drawing 3 even if air bag equipment operates, an air bag expands and it

pushes up a door member from a rear face by the shock, the expansion-pressure force is effectively concentrated in the fracture section 14 of thin meat. therefore, it is shown in drawing 4 — as — the aforementioned door — the door book soma 11 of a member 10 can be made to open wide easily and certainly, and the air bag A in the air bag hold container C develops to a vehicle room side promptly through Opening O

[0020] Next, the example of manufacture of the vehicle room flank material using the door member of this example is shown. it is shown in drawing 5 — as — vehicle room flank material fabrication — the vehicle room flank material composition resin material P1 is injected in the product cavity 31 of metal mold 30 the predetermined position in the aforementioned product cavity 31 — beforehand — the door of this invention — the member 10 is arranged the aforementioned vehicle room flank material composition resin material P1 is shown in drawing 6 — as — the inside of the product cavity 31 — being full — the aforementioned door — the vehicle room flank material which has a member 10 in the part at one is formed that time — the aforementioned door — the reinforcement layer 15 which becomes the attachment section 12 of a member 10 from the reinforcement molding material which has high rigidity and high thermal resistance — a door — a member — since it is formed in one to near the periphery — the aforementioned vehicle room flank material composition resin material P1 and a door — even if door book soma periphery 11a of a member contacts, deformation etc. is not produced in a door member

[0021] Drawing 7 shows other examples of the air bag door structure of this invention. the door shown here — a member 40 consists of a door book soma 41 and the attachment section 42 to the air bag hold container prepared in the rear-face side, and the reinforcement layer 45 by the reinforcement molding material is formed in the external surface of the aforementioned attachment section 42 at one

[0022]

[Effect of the Invention] It can concentrate on the fracture section, without the expansion-pressure force of an air bag distributing, since extension of the attachment section is suppressed in the case of air bag expansion according to the air bag door structure of the vehicles of this invention, as it illustrates above and being explained, and a door member can be opened certainly with a sufficient precision, and promptly. Moreover, on the occasion of fabrication of vehicle room flank material, a door book soma periphery cannot deform in response to the injection pressure and the heat of composition resin material of vehicle room flank material, and it can fabricate good [appearance].

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] the door which has this invention structure — it is the cross section of a member
[Drawing 2] It is the cross section of the vehicle room flank material of the vehicles with which the door member of this invention structure was prepared.
[Drawing 3] It is the cross section in which it is shown immediately after the air bag equipment operates.
[Drawing 4] It is the cross section showing the state where an air bag expands.
[Drawing 5] It is the cross section showing the example of manufacture of the vehicle room flank material of vehicles which has the air bag door structure of this invention, and is the cross section showing the state where the composition resin material of vehicle room flank material was injected in the mold.
[Drawing 6] It is the cross section showing the state where fabrication was completed.
[Drawing 7] the door which has this invention structure — it is the cross section showing other examples of a member
[Drawing 8] a general door — it is the cross section showing the structure of a member
[Drawing 9] It is the cross section showing the state where the air bag equipment operated.
[Drawing 10] It is the cross section showing the example of manufacture of the vehicle room flank material which has a door member in one.
[Drawing 11] It is the cross section showing the state where fabrication was completed.
[Description of Notations]
10 Door — Member
11 Door Book Soma
12 Attachment Section
13 Mounting Hole
14 Fracture Section
15 Reinforcement Layer
20 Vehicle Room Flank Material Fabrication — Metal Mold

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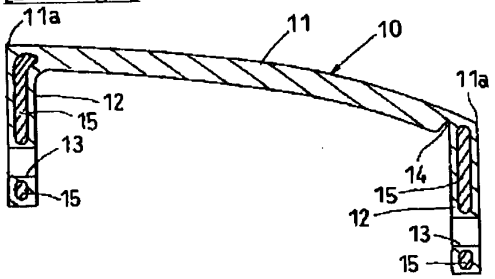
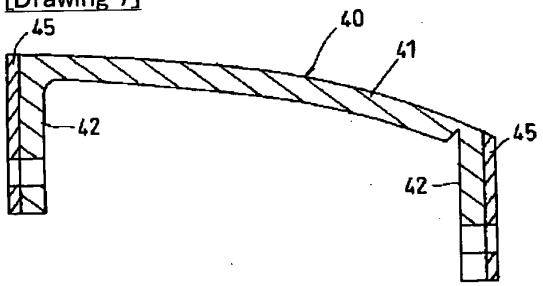
DRAWINGS

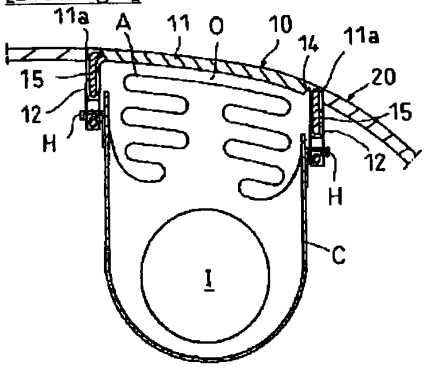
[Drawing 1]



[Drawing 7]



[Drawing 2]



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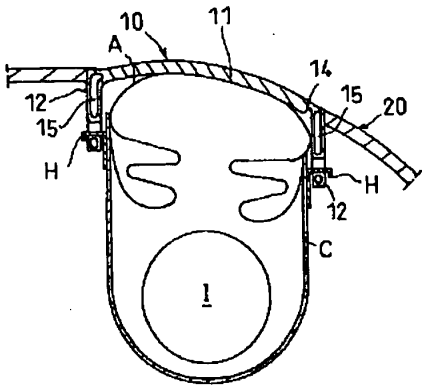

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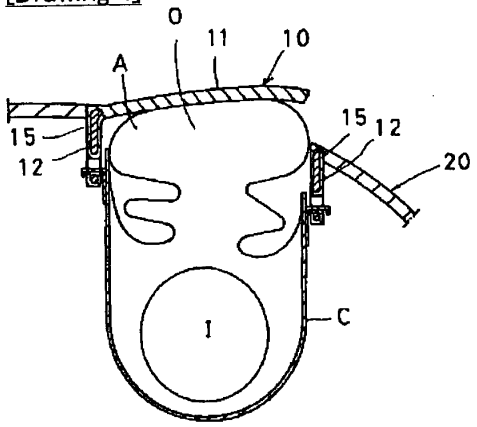

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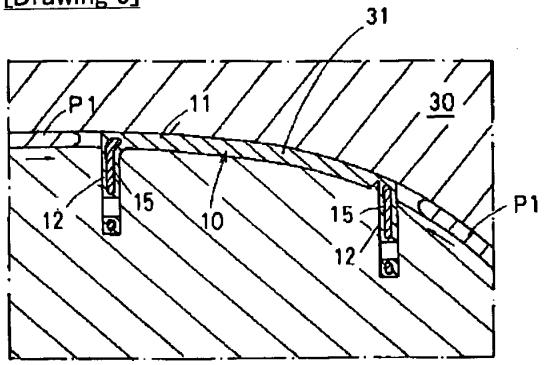

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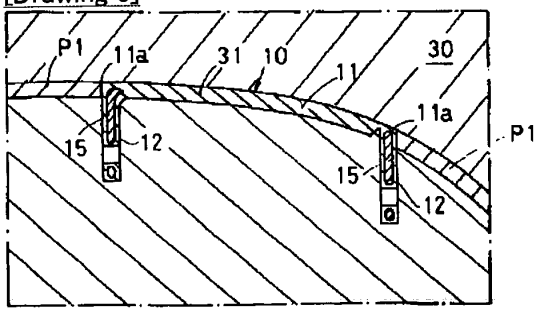

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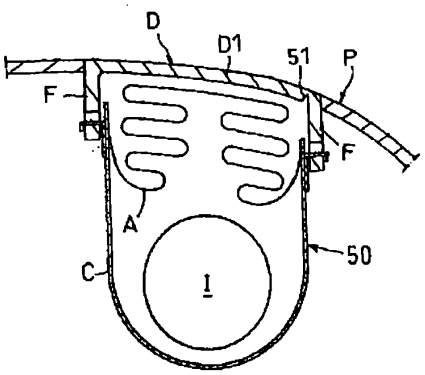
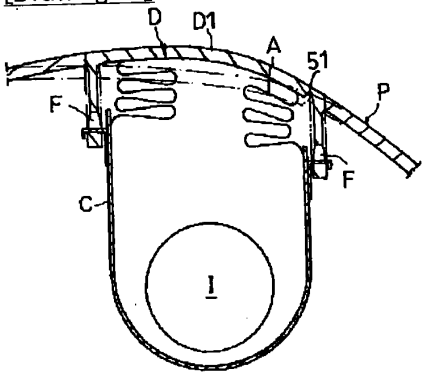
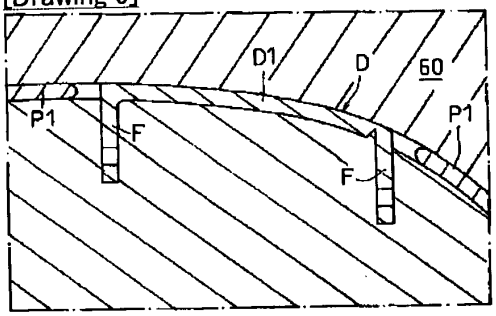


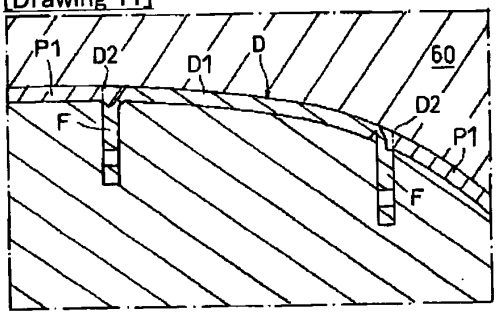
[Drawing 10]



[Drawing 9]



[Drawing 11]



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審査請求　未請求　請求項の数２　ＦＤ　（全　５　頁）

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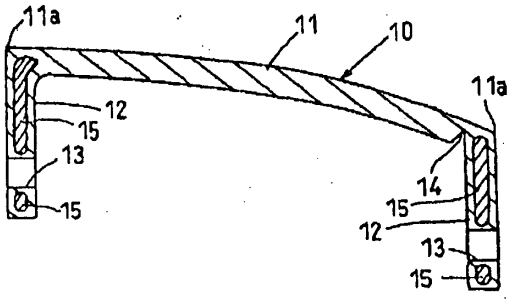
(54)【発明の名称】　車両のエアバッグドア構造

(57)【要約】
【課題】　成形時には車室側部材を構成する樹脂材料と接触しても変形することがなく外観良好な製品を得ることができ、しかもエアバッグ膨張時には取付部の伸長を抑えてエアバッグの膨張圧力を分散することなく破断部に集中させ、確実かつ速やかにドア部材が開放してエアバッグを精度良く車室内に展開させることのできる車両のエアバッグドア構造を提供する。
【解決手段】　ドア本体部１１にエアバッグ収容容器への取付部１２が形成されたドア部材が車室側部材の成形と同時に一体化されたものにおいて、前記ドア部材のドア本体部と取付部が、曲げ弾性率１０００ｋｇ／ｃｍ²以上のＴＰＯ樹脂よりなる共通の本体成形材料によって一体に成形されているとともに、前記取付部には、曲げ弾性率５０００ｋｇ／ｃｍ²以上のＰＰ樹脂を主成分とする高剛性、高耐熱性樹脂よりなる補強成形材料による補強層１５が一体に成形されている。



【特許請求の範囲】
【請求項1】　ドア本体部にエアバッグ収容容器への取付部が形成されたドア部材が車室側部材の成形と同時に一体化されたものにおいて、
前記ドア部材のドア本体部と取付部が共通の本体成形材料によって一体に成形されているとともに、前記取付部には補強成形材料による補強層が一体に成形されていることを特徴とする車両のエアバッグドア構造。
【請求項2】　請求項1において、前記本体成形材料が曲げ弾性率1000kg／cm² 以上のTPO樹脂で、前記補強成形材料が曲げ弾性率5000kg／cm² 以上のPP樹脂を主成分とする高剛性、高耐熱性樹脂よりなる車両のエアバッグドア構造。
【発明の詳細な説明】
【0001】
【発明の属する技術分野】この発明は車両のエアバッグドア構造に関する。
【0002】
【従来の技術】図8に車両の助手席側に設けられるエアバッグ装置の一例を示す。このエアバッグ装置50は、折り畳まれたエアバックAがエアバッグ作動装置Iとともにエアバッグ収容容器C内に収容されており、車室側部材P裏面に取り付けられている。前記エアバッグ収容容器C上部の開口部Oは、平時は前記車室側部材Pに一体に形成されたドア部材Dにより覆われているが、車両が一旦大きな衝撃を受けた時には、前記エアバッグ作動装置Iの作動により膨張したエアバッグAの圧力によって車室側部材P裏側から押し上げられてドア部材Dが開き、エアバッグAを車室内に展開させるようになっている。このドア部材Dはあらかじめ別成形され、図9に示すように、車室側部材Pの成形時にその型60内に配置され、当該車室側部材の成形と同時にドア本体部D1が車室側部材を構成する樹脂材料P1と一体化される。そして、ドア裏面に設けられた取付部Fを介してエアバッグ収容容器Cの上部周縁に取り付けられている。符号51は前記ドア本体部D1の外周に沿って設けられた薄肉の破断部である。
【0003】ところで、この種エアバッグドア構造にあっては、ドア部材Dがエアバッグの膨張時の衝撃で割れたりあるいはその破片が車室内に飛散することがないように、ドア部材Dを周囲の車室側部材よりも柔らかい軟質エラストマーにより構成する場合が多い。しかしながら、ドア部材Dをこのような軟質材によって構成すると、該ドア部材Dは、図10に示すように、エアバッグAの膨張圧力によってエアバッグ収容容器Cとの取付部Fが伸長するきらいがある。このドア部材Dにおける取付部Fが伸長すると、破断部51へ加えられるべきエアバッグの膨張圧力が吸収され分散される。このエアバッグの膨張圧力の分散は、ドア部材の開放時間のばらつきおよび収容容器内でのエアバッグの内圧の上昇につながるため、より精度よく確実に作動するドア部材を得るためには、前記エアバッグ膨張時の取付部の伸びを最小限に抑える必要がある。
【0004】一方、ドア部材Dと一体に車室側部材を成形するに際しては、当該ドア部材Dが軟質材によって構成されていると、図11に示すように、ドア本体部D1の外周D2が車室側部材の構成樹脂材料P1の射出圧および熱を受けて変形し、一体成形された車室側部材におけるドア部材との合接ラインが乱れ、その外観を損ねるという問題があった。
【0005】
【発明が解決しようとする課題】この発明はこのような問題点に鑑みて提案されたものであって、成形時には車室側部材を構成する樹脂材料と接触しても変形することがなく外観良好な製品を得ることができ、しかもエアバッグ膨張時には取付部の伸長を抑え、エアバッグの膨張圧力を分散することなくドア破断部へ集中し、もって確実かつ速やかにドア部材が開放してエアバッグを精度良く車室内に展開させることのできる車両のエアバッグドア構造を提供しようとするものである。
【0006】
【課題を解決するための手段】すなわち、この発明は、ドア本体部にエアバッグ収容容器への取付部が形成されたドア部材が車室側部材の成形と同時に一体化されたものにおいて、前記ドア部材のドア本体部と取付部が共通の本体成形材料によって一体に成形されているとともに、前記取付部には補強成形材料による補強層が一体に成形されていることを特徴とする車両のエアバッグドア構造に係る。
【0007】
【作用】この発明の車両のエアバッグドア構造によれば、エアバッグ収容容器への取付部には補強材料による補強層が一体に形成されているので、取付部に充分な強度が付与される。したがって、エアバッグ膨張時の取付部の伸長が抑えられ、エアバッグのエアバッグの膨張圧力を分散することなくドア破断部へ集中し、もって確実かつ速やかにエアバッグドアを展開させることができる。
【0008】特に、請求項2に示すように、ドア本体部と取付部を構成する本体成形材料が曲げ弾性率1000kg／cm² 以上のTPO樹脂、補強成形材料が曲げ弾性率5000kg／cm² 以上のポリプロピレンを主成分とする高剛性、高耐熱性樹脂より構成することが好ましい。
【0009】この発明において、本体成形材料の曲げ弾性率を1000kg／cm² 以上のTPO樹脂としたのは、ドア部材に適当な柔軟性を持たせることによって、ドア部材開放時のドアの割れおよび破片の飛散などをなくすためである。この本体成形材料の曲げ弾性率が1000kg／cm² 未満である場合、ドア部材の剛性およ

び耐熱性が不充分となる。また、ドア本体部と取付部とを一体に成形することによって、前記ドア本体部が開放する際、取付部で折れたりすることがない。

【0010】さらに、補強層を構成する補強成形材料を、曲げ弾性率が5000kg／cm² 以上のポリプロピレンを主成分とする高剛性および高耐熱性の樹脂材料とするのは、ドア部材がエアバッグの膨張により押し上げられた場合に取付部が伸びるのを防ぐためである。また、車室側部材の成形時に車室側部材形成材料とドア部材とが接触してもドア部材に変形を生じないようにするためである。

【0011】このポリプロピレンを主成分とする樹脂材料としては、車室側部材を構成する樹脂材料を用いてもよい。前記補強成形材料の曲げ弾性率が5000kg／cm² 未満であると、取付部12に所期の剛性を与えることができず、伸びが大きくなってエアバッグの膨張圧力の分散によりドア部材の開放時間のばらつきおよび収容容器内でのエアバッグの内圧上昇につながることがある。また、車室側部材成形時におけるドア本体部の変形および外周の歪みを完全に防ぐことができない。前記補強層15は、前記取付部12において少なくともエアバッグ収容容器Cへの取付孔13を含み、ドア本体部11との境界直近まで設けられていることが好ましい。それにより、エアバッグ膨張時の取付部の伸びが防止されるだけでなく、ドア本体部の外周が補強されるので、車室側部材成形時にその樹脂材料がドア本体部と接触してドア本体外周部分が変形するのを防ぐことができる。

【0012】なお、前記本体成形材料および補強成形材料には、その物性を損なわない程度の他の添加剤を適宜に添加することができる。その添加剤としては、酸化防止剤、紫外線吸収剤、流動性改良剤、補強材化（フィラー、ファイバー類）などがある。

【0013】

【発明の実施の形態】以下添付の図面に従ってこの発明を詳細に説明する。図1はこの発明構造を有するドア部材の断面図、図2はこの発明構造のドア部材が設けられた車両の車室側部材の断面図、図3はそのエアバッグ装置が作動した直後を示す断面図、図4はエアバッグが膨張する状態を示す断面図である。

【0014】また、図5および図6はこの発明のエアバッグドア構造を有する車両の車室側部材の製造例を示す断面図であって、図5は型内に車室側部材の構成樹脂材料を射出した状態を示す断面図、図6は成形が完了した状態を示す断面図、図7は本発明構造を有するドア部材の他の例を示す断面図である。

【0015】図1および図2に示すように、この発明のドア部材10は、ドア本体部11の裏面に取付部12が形成されており、車室側部材の成形と同時に当該車室側部材20の所定位置に一体化される。なお、同図のエアバッグ装置において図8と同一の符号は同一の部材を示す。ドア本体部11は、車室側部材20の裏面所定位置に設けられたエアバッグ装置50の、エアバッグ収容容器Cの開口部Oを覆って設けられており、車室側部材の一部を構成している。

【0016】また、取付部12は、ドア部材10をエアバッグ収容容器Cに連結するためのもので、前記ドア本体部11の外周11aから裏側に向かってフランジ状に垂設されており、エアバッグ収容容器Cに対する取付孔13が複数形成されている。本実施例では、図2から理解されるように、エアバッグ収容容器Cの上部外周に鉤状の取付部材Hが複数設けられており、前記取付孔13に取付部材Hを引っ掛けることにより取り付けられる。なお、本実施例において、ドア本体部11と取付部12との境界裏面側には、薄肉の破断部14が設けられている。この破断部14は、図示は省略するが、車室側部材の種類やドア部材の形状により、略コの字、ロの字、Eの字状に形成され、エアバッグ膨張時の圧力を効果的に集中させることにより最先に破断し、ドア部材の展開を促す。

【0017】前記ドア本体部11と取付部12は、共通の本体成形材料により一体に成形されている。この本体成形材料は、曲げ弾性率が1000kg／cm² 以上のTPO樹脂が用いられる。

【0018】取付部12の内部には補強成形材料からなる補強層15が形成されている。この補強層15は、曲げ弾性率5000kg／cm² 以上を有するポリプロピレン系樹脂が用いられる。なお、この実施例のドア部材10は、公知のダブルインジェクション成形により好適に成形することができる。

【0019】この構造のエアバッグドアによれば、衝撃によってエアバッグ装置が作動してエアバッグが膨張し、ドア部材を裏面から押し上げても、図3に示すように、取付部12が伸びないので、その膨張圧力は薄肉の破断部14に効果的に集中する。そのため、図4に示すように、前記ドア部材10のドア本体部11を容易にかつ確実に開放させることができ、エアバッグ収容容器C内のエアバッグAが、開口部Oを介して速やかに車室側に展開する。

【0020】次に、この実施例のドア部材を用いた車室側部材の製造例を示す。図5に示すように、車室側部材成形金型30の製品キャビティ31内に、車室側部材構成樹脂材料P1が射出される。前記製品キャビティ31内の所定位置には、あらかじめ本発明のドア部材10が配置されている。前記車室側部材構成樹脂材料P1は、図6に示すように、製品キャビティ31内に充満して、前記ドア部材10をその一部に一体に有する車室側部材を形成する。その際、前記ドア部材10の取付部12には、高剛性および高耐熱性を有する補強成形材料よりなる補強層15がドア部材外周近傍まで一体に形成されているので、前記車室側部材構成樹脂材料P1とドア部材

のドア本体部外周11aとが接触しても、ドア部材に変形などを生じることがない。

【0021】図7はこの発明のエアバッグドア構造の他の例を示すものである。ここで示されるドア部材40は、ドア本体部41とその裏面側に設けられたエアバッグ収容容器への取付部42とからなり、前記取付部42の外面には、補強成形材料による補強層45が一体に形成されている。

【0022】

【発明の効果】以上図示し説明したように、この発明の車両のエアバッグドア構造によれば、エアバッグ膨張の際に取付部の伸長が抑えられるので、エアバッグの膨張圧力が分散することなく破断部に集中し、ドア部材を精度良く確実に、かつ速やかに開放することができる。また、車室側部材の成形に際しては、ドア本体部外周が車室側部材の構成樹脂材料の射出圧および熱を受けて変形することがなく、外観良好に成形することができる。

【図面の簡単な説明】

【図1】この発明構造を有するドア部材の断面図である。

【図2】この発明構造のドア部材が設けられた車両の車室側部材の断面図である。

【図3】そのエアバッグ装置が作動した直後を示す断面図である。

【図4】エアバッグが膨張する状態を示す断面図である。

【図5】この発明のエアバッグドア構造を有する車両の車室側部材の製造例を示す断面図であって、型内に車室側部材の構成樹脂材料を射出した状態を示す断面図である。

【図6】成形が完了した状態を示す断面図である。

【図7】本発明構造を有するドア部材の他の例を示す断面図である。

【図8】一般的なドア部材の構造を示す断面図である。

【図9】そのエアバッグ装置が作動した状態を示す断面図である。

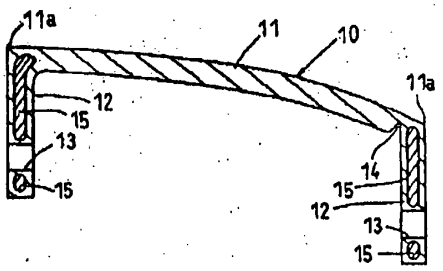
【図10】ドア部材を一体に有する車室側部材の製造例を示す断面図である。

【図11】成形が完了した状態を示す断面図である。

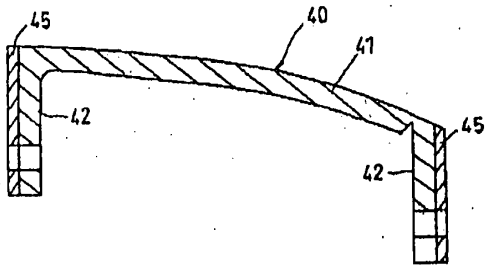
【符号の説明】

10　ドア部材
11　ドア本体部
12　取付部
13　取付孔
14　破断部
15　補強層
20　車室側部材成形金型

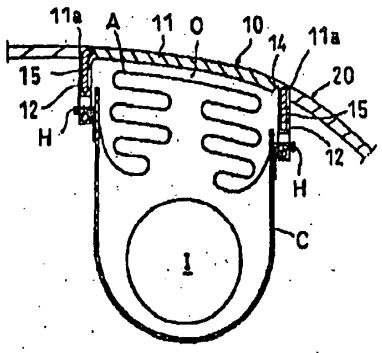
【図1】



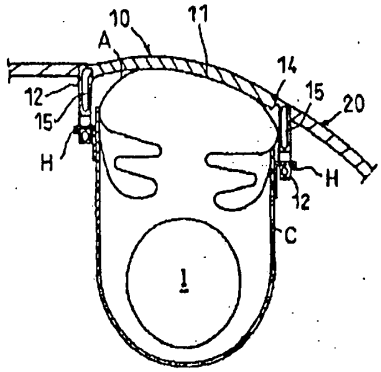
【図7】



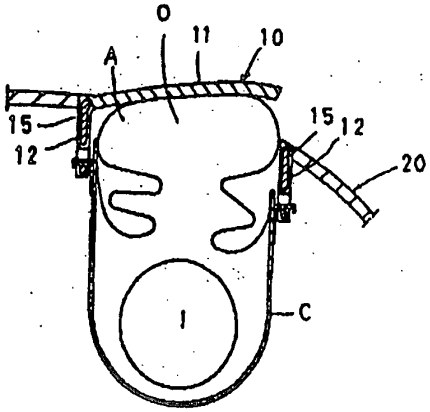
【図2】



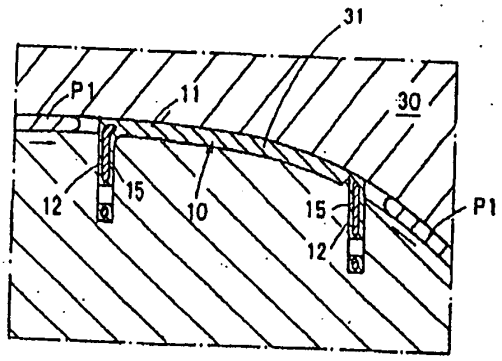
【図3】



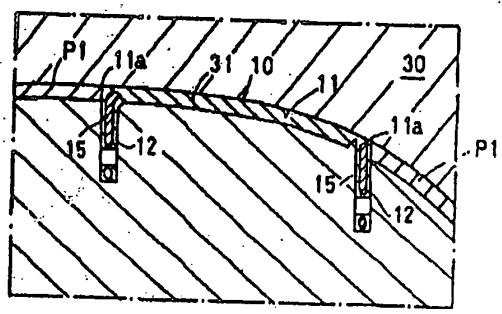
【図4】



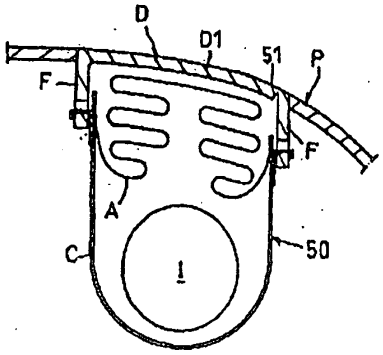
【図5】



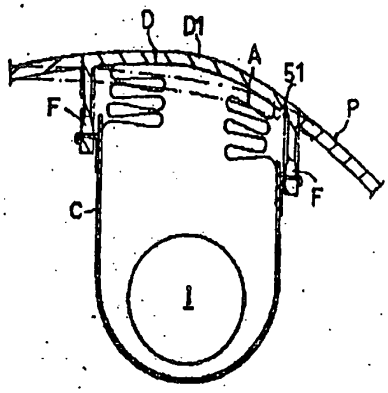
【図6】



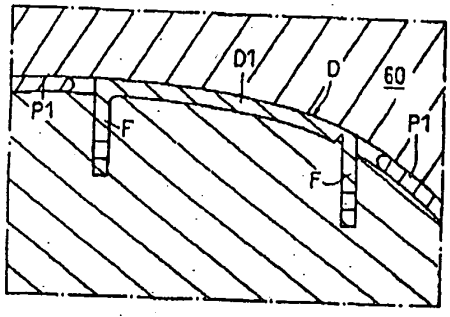
【図8】



【図10】



【図9】



【図11】